List of Contents

NUMBERS 1-2

PROCEEDINGS OF THE 24TH INTERNATIONAL CONFERENCE ON COMPUTERS AND INDUSTRIAL ENGINEERING

Khalil S. Hindi

1 Editor's note

PRODUCTION PLANNING, SCHEDULING AND CONTROL

PRODUCTION	PLANI	ING, SCHEDULING AND CONTROL
Z. Bahroun, P. Baptiste, J. P. Campagne and M. Moalla	3	Production planning and scheduling in the context of cyclic delivery schedules
Hatem Chebeane and Florence Echalier	9	Towards the use of a multi-agents event based design to improve reactivity of production systems
S. T. Enns	15	The effect of batch size selection on MRP performance
Müjde Erol	21	Analysis of production planning in case of the random demand
Jamila Mehli-Qaissi, Amadou Coulibaly and Bernard Mutel	27	Product data model for production management and logistics
Sıtkı Gözlü, Demet Bayraktar and Selahaddin Baykaş	31	Improvement of capacity utilization in a subcontracting small scale manufacturing company
Kai Mertins and Reinhard Arlt	35	Supporting order control in decentral manufacturing structures
Fatima Ghedjati	39	Genetic algorithms for the job-shop scheduling problem with unrelated parallel machines and precedence constraints: heuristic mixing method

Jiyin Liu and Lixin Tang	43	A modified genetic algorithm for single machine scheduling
David Todd and Pratyush Sen	47	Distributed task scheduling and allocation using genetic algorithms
Runwei Cheng, Mitsuo Gen and Yasuhiro Tsujimura	51	A tutorial survey of job-shop scheduling problems using genetic algorithms: Part II. Hybrid genetic search strategies
Richard Linn and Wei Zhang	57	Hybrid flow shop scheduling: a survey
A. P. Reynolds and G. P. McKeown	63	Scheduling a manufacturing plant using simulated annealing and simulation
G. Celano, S. Fichera, V. Grasso, U. La Commare and G. Perrone	69	An evolutionary approach to multi-objective scheduling of mixed model assembly lines
J. Schumacher, Z. Verwater-Lukszo and M. P. C. Weijnen	75	Disturbances and their impact on scheduling
Ewa Figielska	81	Preemptive scheduling with changeovers: using column generation technique and genetic algorithm
Wen-Yau Liang and Peter O'Grady	85	An Internet-based application for electronics assemblies components selection
Tiber Tóth, Ferenc Erdélyi and Farzad Rayegani	89	Intensity type state variables in the integration of planning and controlling manufacturing processes
Alain Guinet	93	A primal-dual approach for capacity-constrained production planning with variable and fixed costs
Wen-Yau Liang and Peter O'Grady	97	An object-oriented formalism for electronics assemblies components selection
T. K. Kurian and Ch. V. Krishna Reddy	101	On-line production control using a genetic algorithm

CAD/CAM

P. T. J. Andrews,
T. M. M. Shahin and
S. Sivaloganathan

105 Design reuse in a CAD environment—four case studies

106 Studies

107 A computer-based intelligent system for design for assembly

108 Design reuse in a CAD environment—four case studies

119 Studies

110 Design reuse in a CAD environment—four case studies

110 Design reuse in a CAD environment—four case studies

QUALITY, RELIABILITY, MAINTENANCE

Takenori Takahashi	121	Statistical inference by normal probability paper
P. M. Herder and M. P. C. Weijnen	125	Assessment of the quality of the design process and the design of chemical plants with Piquar
G. Celano and S. Fichera	129	Multiobjective economic design of an X control chart
Konstantin N. Nechval and Nicholas A. Nechval	133	Constructing lower simultaneous prediction limits on observations in future samples from the past data
G. Y. Hong, M. Xie and P. Shanmugan	137	A statistical method for controlling software defect detection process
Yu. M. Paramonov and A. Yu. Paramonova	141	Decision procedures of automated system for inspec- tion program development
Takeaki Taguchi and Takao Yokota	145	Optimal design problem of system reliability with interval coefficient using improved genetic algorithms
Mitsuo Gen and Jong Ryul Kim	151	GA-based reliability design: state-of-the-art survey
Nigel D. C. Lewis	157	Assessing the evidence from the use of SPC in monitoring, predicting and improving software quality
A. C. M. Fong and G. R. Higgie	161	An improved algorithm for calculating the average synchronization delay of T-codes
M. Xie and G. Y. Hong	165	Software release time determination based on un- bounded NHPP model

João Oliveira Soares and Artur Viana Fernandes	169	Economic evaluation of software projects—a systematic approach
MS. Ouali, D. Ait-Kadi and N. Rezg	173	Fault diagnosis model based on Petri net with fuzzy colors
G. Q. Huang, M. Nie and K. L. Mak	177	Web-based failure mode and effect analysis (FMEA)
		SIMULATION
J. C. W. Debuse, V. J. Rayward-Smith and G. D. Smith	181	Parameter optimisation for a discrete event simulator
Vlatka Hlupic	185	Simulation software: users' requirements
Mohy El-Din Mahmoud and Khaled El-Araby	189	A robust dynamic highway traffic simulation model
Essam El-Magd	195	Simulation of material behaviour under dynamic loading
George M. Giaglis, Ray J. Paul and Robert M. O'Keefe	199	Discrete simulation for business engineering
Joon-Soo Bae, Seok-Chan Jeong, Youngho Seo, Yeongho Kim and Suk-Ho Kang	203	Integration of workflow management and simulation
Nathalie Grangeon, Alain Tanguy and Nikolay Tchernev	207	Generic simulation model for hybrid flow-shop
S. E. Moussa, C. Moghrabi and M. S. Eid	211	Simulating the first operation in an assembly line
Leovigildo Lopez-Garcia and Adelita Posada-Bolivar	215	A simulator that uses Tabu Search to approach the optimal solution to stochastic inventory models
Celestine A. Ntuen and Eui H. Park	219	Simulation of crew size requirement in a maintained reliability system

Ray J. Paul	223	The CASM environment revisited again
S. I. lassinovski, C. Raczy and A. Artiba	227	Intelligent simulation based decision support environment
N. Fritz, A. ElSawy, KH. Modler and H. Goldhahn	231	Simulation of mechanical drives with EASY5®
Tillal Eldabi, Ray J. Paul and Simon J. E. Taylor	235	Computer simulation in healthcare decision making
Hwa Gyoo Park, Jong Myung Baik, Sang Bong Park and Chan Ho Lee	239	A development of object-oriented simulator for manufacturing execution systems
Hamad I. Odhabi, Ray J. Paul and Robert Macredie	243	Java iconic visual environment for simulation (JIVESim)
		INVENTORY
Nicholas A. Nechval and Konstantin N. Nechval	247	Applications of invariance to estimation of safety stock levels in inventory model
K. Takeda and M. Kuroda	251	Optimal inventory configuration of finished and semifinished products in multi-stage production/inventory system with an acceptable response time
Heung-Suk Hwang	257	Inventory models for both deteriorating and ameliorating items
M. K. Salameh, S. A. Fakhreddine and N. Noueihed	261	Effect of deteriorating items on the instantaneous replenishment model with backlogging
Igor Ushakov, Sergei Antonov, Sumantra Chakravarty, Asad Hamid and Thomas Keliinoi	265	Spare supply system for Globalstar, a worldwide telecommunication system
Fuh-hwa Liu and Jung-wei Tseng	269	Bilevel hysteretic service rate control for bulk arrival queue

- K. L. Mak, Y. S. Wong and G. Q. Huang
- 273 Optimal inventory control of lumpy demand items using genetic algorithms

METAHEURISTICS AND APPLICATIONS

F. Riane, C. Raczy and A. Artiba

277 Hybrid auto-adaptable simulated annealing based heuristic

Andreas Fink and Stefan Voß

281 Generic metaheuristics application to industrial engineering problems

The impact of neighbouring size on the process of simulated annealing: computational experiments on the flowshop scheduling problem

ERGONOMICS, HUMAN FACTORS ENGINEERING, IE EDUCATION

Yves Beauchamp 289 Application of visual analog scales (VAS) for the comparative evaluation of tool and equipment designs and work methods Sherif M. Waly and 293 Ergonomic design using computer animation Frederick E. Sistler Godwin G. Udo and 297 Human factors affecting the success of advanced Aniekan A. Ebiefung manufacturing systems C. M. Copot, S. M. Taboun 301 Bench-marking epidemiological models of repetitive and L. P. Oriet strain injuries for various industries Wei Zhang, 305 Voice recognition based human-computer interface Vincent G. Duffy, design Richard Linn and **Ameersing Luximon** Satoshi Uchida and 309 Visual matrix calculator for undergraduate students Naokazu Yamaki H. M. Hosny 313 An interactive lab environment for computing concepts and courseware

FACILITY PLANNING, ROUTING, LOCATION, LOADING

R. Yaman and E. Balibek 319 Decision making for facility layout problem solutions R. J. Kuo, S. C. Chi and 323 A decision support system for locating convenience S. S. Kao store through fuzzy AHP A. I. Abdelmola and 327 Productivity model for the cell formation problem: a S. M. Taboun simulated annealing algorithm Fuh-hwa Franklin Liu and 331 An overview of a heuristic for vehicle routing problem with time windows Sheng-yuan Shen Heung-Suk Hwang 335 A food distribution model for famine relief C.-F. Chien and W.-T. Wu 339 A framework of modularized heuristics for determining the container loading patterns

INDUSTRY APPLICATIONS

343 An automatic system for dirt in pulp inspection using F. Duarte, H. Araújo and A. Dourado hierarchical image segmentation P. Tantaswadi, J. Vilainatre, 347 Machine vision for automated visual inspection of N. Tamaree and cotton quality in textile industries using color iso-P. Viraivan discrimination contour Nazario D. Ramirez-Beltran 351 Statistical analysis of drug stability and Luis A. Olivares P. Carvalho, H. Araújo and 355 An automatic optical sensor for vessels and fibbers A. Dourado quality inspection in pulp production A. L. Orille, 359 A new simulation of symmetrical three phase induc-G. M. A. Sowilam and tion motor under transformations of Park J. A. Valencia R. López, J. Pedra and 363 Transformer simulation useful for harmonic analysis L. Sainz H. Meng, P. C. Russell, Modelling and control of plasma etching processes in 367 P. J. G. Lisboa and the semiconductor industry G. R. Jones

Aniekan A. Ebiefung and Godwin Udo	371	An industrial pollution emission control model
E. Hopper and B. Turton	375	A genetic algorithm for a 2D industrial packing problem
Takao Yokota, Takeaki Taguchi and Mitsuo Gen	379	A solution method for optimal cost problem of welded beam by using genetic algorithms
Edmund Burke and Graham Kendall	383	Comparison of meta-heuristic algorithms for clustering rectangles
Nazario D. Ramirez-Beltran and Henry Jackson	387	Application of neural networks to chemical process control
A. L. Orille and G. M. A. Sowilam	391	Application of neural networks for direct torque control
A. L. Orille and Nabil Khalil	395	A fast faulted phase detection relay for high voltage transmission lines using the FIR neural networks
A. L. Orille, Nabil Khalil and J. A. Valencia V.	399	A transformed differential protection based on finite impulse response artificial neural network
Yoshimitsu Yokota, Jun Usuki and Masatoshi Kitaoka	403	Smoothing of EMG and heart rate profile with spline function and forecasting with neural network
ENGINEERING EC	ONO	MICS/ENGINEERING MANAGEMENT
A. Gunasekaran, H. B. Marri and R. J. Grieve	407	Activity based costing in small and medium enter- prises
A. Gunasekaran and D. Singh	413	Design of activity-based costing in a small company: a case study
K. A. Weir, A. K. Kochhar, S. A. LeBeau and D. G. Edgeley	417	Strategic integration in UK manufacturing companies
A. M. Ahmed and H. S. Abdalla	421	The role of innovation process in crafting the vision of the future
Clive Vassell	425	Computer integrated manufacturing, and small and

Georges Abdul-Nour, Jocelyn Drolet and Serge Lambert	429	Mixed production, flexibility and SME
Navee Chiadamrong	433	An integrated fuzzy multi-criteria decision making method for manufacturing strategies selection
K. Wagner, P. Ohlhausen, J. Vilsmeier and R. Bennion	437	Implementing world-class standards in R&D for the European aerospace industry
Kyung Hye Park and Joël Favrel	441	Virtual enterprise—information system and networking solution
EXPERT	SYSTE	MS, AI, DECISION SUPPORT
A. A. El-Sawy and H. S. Abdalla	445	A hybrid approach for machining process optimization using multiple experts data
Nigel D. C. Lewis	449	Continuous process improvement using Bayesian Belief Networks
Walid Chainbi	453	Proposition of formal semantics for multi-agent systems
A. Brun and A. Portioli	457	Agent-based shop-floor scheduling of multi stage systems
Yu. M. Paramonov, V. I. Abramov and A. A. Glagovsky	461	Automated system for inspection planning
C. K. Y. Lin	465	The development of a workforce management system for a hotline service
Thomas W. Knowles	469	Optimization models for mine planning
Grant DuCote and Eric M. Malstrom	473	A design of personnel scheduling software for manufacturing
A. C. Garavelli, M. Gorgoglione and	477	Fuzzy logic to improve the robustness of decision support systems under uncertainty

B. Scozzi

OPTIMISATION/COST ESTIMATION/PROCESS CONTROL

A. Gayretli and H. S. Abdalla 481 A feature-based prototype system for the evaluation and optimisation of manufacturing processes H. Jahan-Shahi, E. Shayan 485 Cost estimation in flat plate processing using fuzzy and S. Masood H. A. Eiselt and 489 Price probing in the simplex method C.-L. Sandblom Selma Limam and 493 Towards a communicating Petri net tool for modeling Pierre Ladet production processes M. L. Espinouse, 497 Minimizing the makespan in the two-machine no-P. Formanowicz and wait flow-shop with limited machine availability B. Penz Hélène Rousseau 501 Discretisation of the switched flow systems: influence on the chaotic behaviour

NUMBER 3

SPECIAL ISSUE: MULTI-CRITERIA DECISION MAKING IN INDUSTRIAL ENGINEERING

ii V	001	MAL LIVOINTELIMING
	505	Preface
K. L. Poh and B. W. Ang	507	Transportation fuels and policy for Singapore: an AHP planning approach
Eng U. Choo, Bertram Schoner and William C. Wedley	527	Interpretation of criteria weights in multicriteria decision making
Sai Kolli and Gerald W. Evans	543	A multiple objective integer programming approach for planning franchise expansion
Yi-Hsin Liu and Jerald P. Dauer	563	Bicriteria programming with several modern applications
E. Melachrinoudis	581	Bicriteria location of a semi-obnoxious facility
Wlodzimierz Ogryczak	595	On the distribution approach to location problems

Susan X. Li 613 Interactive strategy sets in multiple payoff games Theodore B. Trafalis. An interior point multiobjective programming 631 Tsutomu Mishina and approach for production planning with uncertain information Bobbie L. Foote Theodore B. Trafalis and 649 An interactive analytic center trade-off cutting plane Rashid M. Alkahtani algorithm for multiobjective linear programming **NUMBER 4** Chandrasekharan Rajendran 671 Heuristics for scheduling in flowshops and flowlineand Hans Ziegler based manufacturing cells to minimize the sum of weighted flowtime and weighted tardiness of jobs H. T. Papadopoulos and 691 Optimal buffer allocation in short μ -balanced M. I. Vidalis unreliable production lines Ruhul A. Sarker and 711 An optimal batch size for a production system Lutfar R. Khan operating under periodic delivery policy Ching-Wai Tan and 731 Composite event support in an active database Angela Goh M. R. Rotab Khan, 745 Computer simulation of production systems for S. C. Harlock and woven fabric manufacture G. A. V. Leaf Rodney R. Rasmussen, 757 Integrating simulation with activity-based manage-Paul A. Savory and ment to evaluate manufacturing cell part sequencing Robert E. Williams Bhaba R. Sarker and 769 Relative performances of similarity and dissimilarity Khan M. Saiful Islam measures Yi-Feng Hung and 809 Using an empirical queueing approach to predict Ching-Bin Chang future flow times Derek P. Rutherford and 823 Forecasting notebook computer price as a function of Wilbert E. Wilhelm constituent features L. R. Foulds and J. M. Wilson 847 On an assignment problem with side constraints

Lotfi K. Gaafar

- 859 Maintaining the validity of simulation models using prediction intervals
 - Volume Contents and Author Index for Volume 37 (1999)

